ENTOMOLOGICAL NEWS

VOL. LXIV OCTOBER, 1953 No. 8

A New Gall Midge Infesting Holly (Diptera: Itonididae)

By RICHARD H. FOOTE [1]

The species described here as new is recorded from three eastern states, Maryland, Virginia, and West Verginia, and infests berries of *Ilex opaca* Ait. (American holly) and *Ilex* sp., preventing their ripening.

Asphondylia ilicicola n. sp.

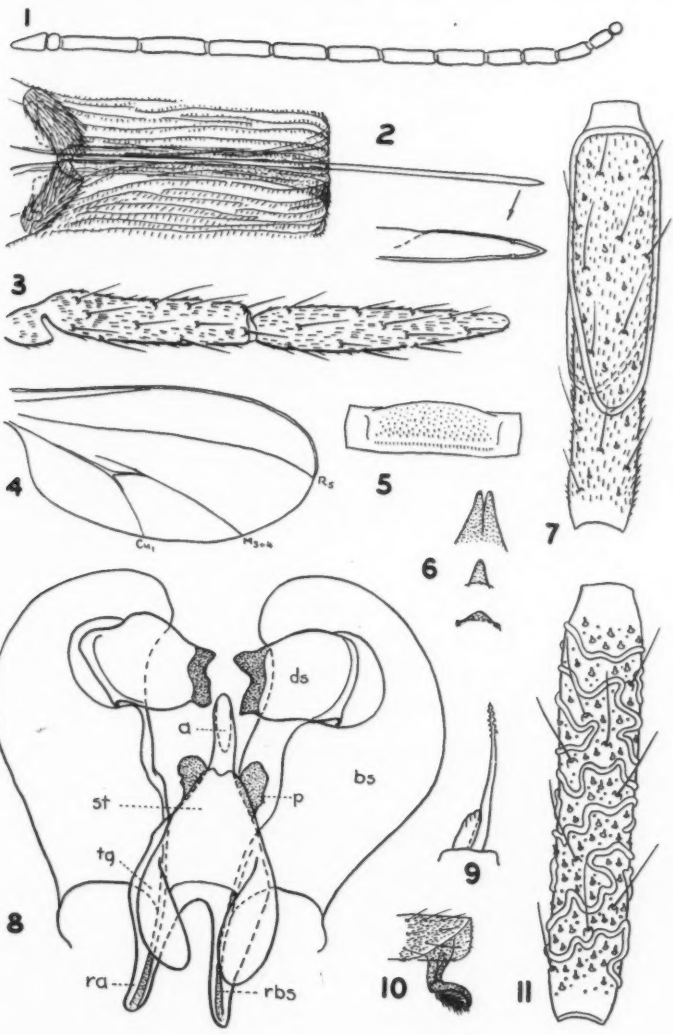
Female: Antenna brown, frons brownish yellow; eyes black. Mesonotum gray pollinose, with a slightly darker narrow median line on anterior two-thirds; posterior third of mesonotum light gray pollinose; each lateral area with a dark gray spot of variable size in the pollinosity just anterior to the wing; a narrow area midway between center line and lateral margin of mesonotum, and a patch antero-laterally, with long, golden hairs. Scutellum and post-scutellum light brown, shiny, with a patch of long golden hairs apico-laterally. Prothorax, propleura and pteropleura light yellowish brown, all other pleural sclerites shining grayish brown becoming darker gray ventrally. Coxae and trochanters grayish brown; front femora light yellowish brown on postero-dorsal surface, becoming slightly darker apically, all remaining surfaces with narrow dark brown scales; mid and hind femora light on posterior surfaces and with slightly darker scales on remainder; tibiae unicolorous or nearly so, somewhat lighter at extreme bases, about as dark as dark portion of femora,

[1] Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, U. S. Department of Agriculture, Washington 25, D. C.

clothed with narrow dark scales; tarsal segments with dark scales which appear to be very slightly darker toward the tip of each segment, the fifth tarsal segment golden brown. Wing very light gray, heavily clothed with dark hairs, the basal three-fourths of costa especially so, fringe at posterior angle of wing long. Halter with narrow light scales on stem and apex of knob and darker scales at base of knob. Abdomen light brown, terminalia light brown, both covered with long, golden hairs. Eyes broadly contiguous over head, frons narrow; antenna of 14 segments, the scape roughly triangular, three times as wide at distal end as long; pedicel subglobular, only slightly wider in diameter than the following flagellar segments; last three flagellar segments markedly shortened, the 12th segment 0.4 times as long as basal, 13th 0.25 times as long and the 14th subglobular; circumfilae of second flagellar segment of two loops joined on distal third of segment (fig. 7), circumfilae of 12th and 13th on distal halves of the segments, none present on terminal segment. Three palpal segments, the proportions 1.0 : 4.7 : 6.0, the basal segment sometimes very indistinct, terminal segment bluntly pointed distally (fig. 3). Wing (fig. 4) 2.1 times as long as wide; costa extending slightly beyond tip where it meets R_5, the latter bending down slightly from apical five-sevenths of wing to meet it; M_{3+4} 1.2 times as long as M. Proportions of hind tarsal segments 1.6 : 7.0 : 4.0 : 2.8 : 2.2; tibia slightly longer than femur; length of pulvillus nearly equal to that of claw, the latter single on all three pairs of legs (fig. 10). Ovipositor 0.5 times as long as abdomen; aciculate, very slender, the tip as shown (fig. 2); dorsal pouch blackened, thickly spined and setose, with a median distal invagination, the two lateral halves parallel-sided; membrane of ovipositor with rows of minute, evenly-spaced setae.

EXPLANATION OF FIGURES

Asphondylia ilicicola n. sp. Fig. 1. Female antenna. Fig. 2. Female ovipositor, with posterior tip enlarged. Fig. 3. Female palp. Fig. 4. Wing of male. Fig. 5. Fourth abdominal tergite of pupa. Fig. 6. Pupal "horns." Fig. 7. Second antennal segment of female. Fig. 8. Male terminalia; a, aedeagus; ds, dististyle; bs, basistyle; p, paramere; st, 10th sternite; tg, 10th tergite; ra, root of aedeagus; rbs, root of basistyle. Fig. 9. Pupal respiratory organ. Fig. 10. Apex of fifth tarsal segment of male. Fig. 11. Second antennal segment of male.


1
2
3
4
Rs
Cu1
M3+4
5
6
7
8
ds
a
bs
st
p
tg
ra
rbs
9
10
11

Male: Color similar to female. Terminal flagellar segments not distinctly shortened; circumfila on each segment consisting of a tortuous maze closely adherent to the sides of the segment (fig. 11). Terminal palpal segment tending to be very slightly shorter than that of the female. Proportions of hind tarsal segments 1.5: 10.0: 6.0: 4.0: 2.5. Basistyle short, stout, incomplete on inner side, its root running the full length of root of aedeagus; dististyle extremely short and stout with a bidentate tooth apically, the anterior projection rather blunt, abruptly tapering, the posterior projection slightly flattened on the inner side; tenth sternite broadly triangular with a small distal notch, setae dense and long; tenth tergite with two well-separated setose lobes; aedeagus with two long roots extending well basad of base of basistyle, the side of each root slightly flared laterally, opening at tip of aedeagus 4.0 times as long as wide; parameres darkened, irregular masses attached laterally to either side of aedeagus near terminal opening.

Pupa: Anterior horns touching each other along basal two thirds, and separated only slightly on apical third; second tooth single, blunt; third transverse with only a slight anterior projection (fig. 6). Respiratory organ (fig. 9) consisting of two closely appressed parts, one about one-third the length of the other, the longer with eight to ten slightly raised spiracular openings. Tergites of abdominal segments with a more or less even row of blunt spines near the posterior margin in addition to a patch of irregularly spaced spines which nearly reaches the anterior margin of the tergite, the anterior-most spines in the patch very small and increasing in length posteriorly (fig. 5).

Holotype: Male, Williamsburg, Virginia, Apr. 20, 1949 (J. B. Brouwers), reared from unripened berries of *Ilex* sp., U.S.N.M. Type No. 61640.

Paratypes: 47 females, 7 males, in alcohol and on slides, Williamsburg, Va., Apr. 20, 1949 (J. B. Brouwers), reared from unripened berries of *Ilex* sp., U. S. National Museum Collection.

In addition to the type series, this species is represented in the National Collection by specimens from Mt. Lookout, West Vir-

ginia, (no date), and Halethorpe, Maryland (reared March 21, 1952).

Taxonomic discussion: Size and color characters are used by Felt [1] in his key to the species of *Asphondylia*. For this reason it is difficult for one to be certain that he has run specimens correctly in it, since our knowledge of variation in these particular respects is virtually non-existent. In this key, *ilicicola* runs to *johnsoni* Felt, from which it differs by the shape of the 10th sternite and by the differently-shaped palpal segment. *Asphondylia ilicoides* Felt forms an oval bud gall on mountain holly (*Ilex montana* T. & G.) but differs principally in the color of the legs and the shape of the tenth sternite.

An interesting account of an infestation has been furnished by W. C. Legg, Twintiliana Sanctuary, Mt. Lookout, W. Va., who states in a personal communication that the pupal case is left protruding from the hole in the berry and that the berries are usually green throughout the winter and until they drop off in the spring.

A chalcid parasite, *Rileyia cecidomyiae* Ashmead, has been reared from *A. ilicicola* on two occasions. These have been identified by A. B. Gahan and B. D. Burks of the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

Brief Notes on the Mallophaga. I

By Ronald A. Ward, Department of Zoology, University of Chicago, Chicago 37, Illinois

1. The Identity of *Saemundssonia peristicta* (Kellogg & Kuwana) (Philopteridae)

In the course of a revision of the *Saemundssonia* species occurring on Terns, it has been possible to examine the types of *Saemundssonia peristicta* (Kellogg and Kuwana), through the courtesy of Dr. G. F. Ferris of Stanford University.

[1] Felt, E. P. 1916. A study of gall midges. IV. N. Y. State Museum Bull. No. 186: 114–150.

As in most of Kellogg's Galapagos Islands material, this species was recorded from a number of hosts, none of which is the true host. *Sterna fuliginosa* (= *S. fuscata crissalis* (Lawrence)) may be eliminated as the type host (listed by Hopkins and Clay, 1952: 334), since this is not the actual species of *Saemundssonia* found on the above host. The species of *Saemundssonia* found on this host is closely related to *S. meridiana* Timmermann and *S. snyderi* (Kellogg and Paine) and will be described in a subsequent paper. *Dendroica aureata* and *Nesomimus carringtoni* may also be eliminated, as *Saemundssonia* species are never found on Passerine hosts. Careful study of the type series shows that *S. peristicta* belongs to the group of *Saemundssonia* found on the Waders.

In the lot of material from Dr. Ferris, there were a male and a female of this species labelled "*Docophorus peristictus* K. & K., from *Rhyacophilus solitarius,* Guadelope Id., Galapagos Is., S.I.K. '99" which were not mentioned in the original description (Kellogg & Kuwana, 1902: 462). There can be no doubt that from the labelling and appearance of the slide, that it was examined by the authors; but for some reason, was not recorded in their paper. However, *Rhyacophilus solitarius* (= *Tringa solitaria* Wilson) cannot be considered as the true host, as Dr. Snodgrass did not collect this host species as shown by an examination of the paper by Snodgrass and Heller (1905) on the birds collected by the Hopkins-Stanford Galapagos Expedition. It might be argued that Snodgrass and Heller actually did collect this host but did not record it in their paper. The fact that Hellmayr and Conover (1948: 121) questioned the validity of the occurrence of *Tringa solitaria* in the Galapagos would tend to deny this contention.

The species of Waders which were actually collected on the Hopkins-Stanford Expedition were as follows: *Squatarola squatarola* (Linné), *Charadrius hiaticula semipalmatus* Bonaparte, *Actitis macularia* (Linné) and *Arenaria interpres morinella* (Linné). The first mentioned species may be eliminated as the host, as *peristicta* bears no resemblance to the *Saemundssonia* found on this host. A comparison of Timmermann's redescrip-

tion (1951: 393) of *S. platygaster* (Denny) with *peristicta* shows that almost with certainty, *peristicta* (Kellogg and Kuwana) may be considered as a synonym of *S. platygaster* (Denny) and was probably found on *Charadrius hiaticula*. Timmermann also records it from the above *Arenaria* species which might be the true host. Similarly, a comparison of the females with a single female specimen from *Actitis macularia* shows no differences which seem to be significant. Measurements of the type series (in mm.) of *S. peristicta* (Kellogg and Kuwana) are as follows:

	Length of head	Width of head	Cephalic Index	Length of parameres	Total length
2 males	0.56	0.65–0.68	1.16–1.22	0.27–0.28	1.70–1.73
4 females	0.61–0.63	0.77–0.84	1.25–1.34	———	2.00–2.23

2. The Host of *Lymeon gastrodes* (Cummings) (Trichodectidae)

Conclusive evidence for the presence of *Lymeon gastroides* (Cummings) on the two-toed sloth (*Chloepus didactylus* (Linné)) is now available. Through the courtesy of Dr. Alfred E. Emerson of the University of Chicago, the author received five specimens of the above species (including one male) which Dr. Emerson personally collected from a two-toed sloth at Kartabo, British Guiana, in 1924. He stated that the Mallophaga were so firmly attached to the hair that he had to clip off the hairs in order to preserve the specimens. Three specimens have been kept as such in alcohol and two have been mounted. During the mounting process, a considerable amount of sloth hair was removed from the abdomens of the two lice. The material is identical with Werneck's description (1950: 196, figs. 301–05), and nothing can be added to his able diagnosis.

Since the occurrence of *Lymeon* on the sloth is now confirmed, it would be worthwhile to repeat Hopkins' (1949: 543) statement, "The uncomfortably close resemblance between *Lymeon* and *Procavicola* is possibly accounted for by the stock which gave rise to the Edentata and that which was ancestral to the Pro-

caviidae having originated from the proto-Insectivora close together."

BIBLIOGRAPHY

HELLMAYR, C. E. and B. CONOVER. 1948. Zool. Ser., Field Mus. Nat. Hist. 13 (Pt. I, No. 3).

HOPKINS, G. H. E. 1949. Proc. Zool. Soc. Lond. 119 (Pt. II): 387–604.

HOPKINS, G. H. E. and T. CLAY. 1952. "A check list of the genera and species of Mallophaga." Brit. Mus. (Nat. Hist.)

KELLOGG, V. L. and S. I. KUWANA. 1902. Proc. Wash. Acad. Sci. 4: 457–99.

SNODGRASS, R. E. and E. HELLER. 1904. Proc. Wash. Acad. Sci. 5: 231–372.

TIMMERMANN, G. 1951. Ann. Mag. Nat. Hist. (Ser. 12) 4: 390–401.

WERNECK, F. L. 1950. "Os Malófagos de Mamíferos, Pt. II." Inst. Oswaldo Cruz, Rio de Janeiro.

A Migratory Flight of Dragonflies

On Sepember 20, 1952, Mr. and Mrs. Allan D. Cruickshank observed an unusual flight of dragonflies at Todd's Point, on Long Island Sound near Old Greenwich, Connecticut. The flight was in progress when they arrived at the point at noon, and continued for the next two hours. Thousands of dragonflies passed the point during this period, all moving in a southwesterly direction; they passed in groups, and over a hundred were in sight at a time. Several species were present, but about 90 per cent of the flight consisted of two species. Specimens of these two were collected and sent to the writer for determination; they were *Anax junius* (Drury) and *Trapezostigma lacerata* (Hagen).

Large-scale migratory flights of dragonflies are probably fairly regular in various parts of the United States, but references in the literature to such flights are relatively scarce. Shannon [1] and Osburn [2] have reported flights similar to that observed by the Cruickshanks, and Shannon has mapped some

[1] Sci. Monthly, 3: 227–240. 1916.

[2] Jour. N. Y. Ent. Soc., 24: 90–92. 1916.

of these fights; Walker,[3] Wright,[4] and others have reported swarms that may possibly represent migrating groups.

DONALD J. BORROR
Dept. Zoology and Entomology
Ohio State University
Columbus 10, Ohio

New Taxonomic Entities in Neotropical Aeshnas (Odonata: Aeshnidae) II *

By PHILIP P. CALVERT, University of Pennsylvania and Academy of Natural Sciences of Philadelphia

On making a recheck of the available material of *Aeschna punctata* Martin, a male, identified by Dr. Erich Schmidt and by myself as *punctata*, and whose genitalia of the second abdominal segment were found coated with a hardened substance, was cleaned and the anterior lamina found to lack spines, which are present in *punctata*. This absence justifies the recognition of this male as of a separate species and furnishes the second instance of a species of the subgenus *Hesperaeschna* lacking these spines, the first case being *manni* E. B. and J. H. Williamson 1930; in *psilus* Calvert 1947 these spines are rudimentary. This new species is here and now published for the same reasons that influenced the appearance of No. I.

Aeshna (Hesperaeschna) decessus n. sp.

The specific name, not hitherto used in the Odonata, Latin decessus, departure, is in allusion to the absence of spines from the anterior lamina.

Holotype male and unique specimen: BRAZIL, Südh(äng) Itatiaya-Gebirg., 700 m., Rio de Janeiro, X .31, Zikan, No. P.P.C. 29, coll. of Dr. Erich Schmidt, Bonn am Rhein, Germany.

[3] Canad. Ent., 49: 171–178. 1917.
[4] Fla. Ent., 28: 11–13. 1945.
* Number I was published in the NEWS for December, 1952, Vol. LXIII, No. 10, pp. 253–264.

Face chrome orange, upper margin of anterior surface of frons black. A black line on the fronto-clypeal suture. Width of frons 5.40 mm., maximum width of head 11.44 mm.

Dorsal surface of frons with a transverse basal black stripe embracing the vertex, ocelli and bases of the antennae and continued as a black line along the eye-margin of the frons, and a black T-spot whose stem is of subuniform width (1.39 mm.), bordered on each side by a chrome orange stripe .47 mm. wide, this in turn by a purplish area extending laterad beyond the level of the pointed end of the top of the T of the same side.

Labrum chrome orange, a black line on the clypeo-labral suture, distal margin hardly edged with brown. Vertex chrome orange, margined with black laterally and posteriorly.

Pronotum chrome orange, a pair of black dots on its middle division; whitish and pale brownish hairs 2.04 mm. long on the hind margin.

Pterothorax burnt sienna; a greenish antehumeral stripe 2.86 mm. long, not reaching the antealar sinus by 1.00 mm. and barely diverging from its fellow of the opposite side. Tibiae reddish both superiorly and inferiorly.

Maximum width of abdominal segment 2 6.22 mm., narrowest width of segment 3 1.64 mm., width of hind end of segment 4 3.52 mm., of segment 9 3.27 mm. Ground color reddish brown, dorsum of 10 chiefly chrome orange, the following pale markings pale green or pale blue, designated according to the notation of Prof. E. M. Walker 1912: AD present as a middorsal stripe on segment 2, very indistinct or faded on 4–8, present on 9; MD a small transverse spot on 4–9, separated from its fellow of the opposite side, fused with PMD * on 4–7; PD a pair of large spots on 3–9, separated by middorsal brown or black, the separation wider on 8 and 9 than on preceding segments; AL present on 1–8, fused with ML and PL on 1; ML present on 3–9; PL present on 4–9, fused with ML on 4–8.

* PMD, postmid-dorsal, not included in Prof. Walker's scheme, is a pale spot found in a number of neotropical Aeshnas on each side of the dorsum between MD and PD.

Spines completely absent from the anterior lamina. Genital lobe projecting 1.00 mm. beyond the lateral margin of abd. seg. 2, length at base, measured along the prolonged ventral margin of 2, 2.45 mm.

Superior appendages very similar to those of *punctata,* the arch of the superior carina and the depth of the appendage below the lateral margin, as seen in lateral edge view, the same as in a male of the latter species from Nova Teutonia, Brazil.

Venation in the anterior half of each wing with a reddish yellow tinge. Pterostigma brown ochre above, clay yellow below. Membranule pale clay yellow in its proximal .36, brown grey in the distal .64. Cells in the discoidal triangle of the front wings 7 right, 6 left, of the hind wings 7 right, 6 left, 2 cells on the proximal side in all four. Internal triangle 2-celled in all four wings. Distal thicker antenodal fifth on the front wings, sixth on the hind. Supratriangulars 4 on the front, 3 on the hind. Antenodals 20 on the front, 14 on the hind; postnodals 19 and 18 on the front, 23 on the hind.

Dimensions: Total length 78 mm. Abdomen (excl. apps.) 59, sup. apps. 5.73, hind wing 51, max. width 16, pterostigma, front wing, costal margin 2.95 mm.

Decessus is almost unique among neotropical Aeshnas by the chrome orange color on the head. In this respect it is most closely approached by *biliosa* Kennedy in which the head of the male is colored with bright chrome lemon. The pale colors of the head of most species of *Hesperaeschna* are blues or greens. The combination of chrome orange on the head and the absence of spines from the anterior lamina distinguishes *decessus* from all its allies.

The diagnostic characters of the subgenus *Hesperaeschna* are stated on page 254, ENT. NEWS, LXIII, 1952.

Some Syrphid Fly Synonomy

By C. L. FLUKE, University of Wisconsin

There are several cases of synomony, principally my own, which I wish to clear up at this time.

Mesograpta versus **Mesogramma**

1865. *Mesogramma* Loew, Berl. Ent. Zeitsch. 9: 157 (Not Stephens, 1850, List Brit. Animals, Brit. Mus., Lepidoptera, p. 183).
1872. *Mesograpta* Loew, Berl. Ent. Zeitsch. 16: 114.

It is interesting to note that Loew changed from *Mesogramma* to *Mesograpta* because of preoccupation in Botany. Aldrich in his catalogue went back to *Mesogramma* indicating that the change was not valid.

Early last spring W. W. Wirth of the U. S. National Museum called my attention to the use of *Mesogramma* by Stephens in 1850 in Lepidoptera. Even though *Mesogramma* Stephens stands as an objective synonym of another name in *Geometridae*, the name is not available for these common American *Syrphidae*. It is therefore necessary to go back again to *Mesograpta* Loew. We are indebted to Miss Ina Hawes who called our attention to the above preoccupation.

Lunomyia brooksi (Curran)

1927. *Parhelophilus brooksi* Curran, Can. Ent. 59: 90.
1939. *Lunomyia pollinaria* Fluke, Ann. Ent. Soc. Amer. 32: 373.

I overlooked Curran's species primarily because he described it in *Parhelophilus* instead of in *Lunomyia*. Hull, Trans. Zool. Soc. London 26: 386, places *Lunomyia* as a subgenus of *Asemosyrphus*.

Rhysops neotropicum (Curran)

1937. *Melanostoma neotropicum* Curran, Amer. Mus. Novit. No. 926: 4.
1945. *Rhysops columella* Fluke, Amer. Mus. Novit. No. 1272: 8.

Volucella beatricea Hull

1950. *Volucella beatricea* Hull, Rev. de Entomologia 21: 235.
1951. *Volucella ecuadorea* Fluke, Amer. Mus. Novit. No. 1503: 14.

I have not seen Hull's type which was a female from Ecuador but believe there is no question about the synonomy.

Allograpta micrura (Osten Sacken)

1877. *Sphaerophoria micrura* Osten Sacken, Western Dipt. 330.
1884. *Sphaerophoria picticauda* Bigot, Ann. Soc. Ent. France, p. 102.
1942. *Epistrophe micrura* and *picticauda* Fluke, Amer. Mus. Novit. No. 1201: 14 & 15.
1950. *Allograpta micrura* Fluke, Trans. Wis. Acad. Sci. Arts and Lett. 40: 146.

This species, which has been shoved around in different genera, is a true *Allograpta* based on a study of the genitalia.

Current Entomological Literature

Compiled by VENIA T. PHILLIPS, Librarian

Academy of Natural Sciences of Philadelphia

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania pertaining to entomology, including all arthropods except Crustacea. Coverage will be world-wide as regards major contributions to systematics as well as for all papers on morphology, physiology, embryology, etc. In addition, for species from the Americas and the Pacific (Nearctic, Neotropical and Polynesian regions) all minor contributions to taxonomy, distribution, etc., will also be recorded.

This list gives references of the year 1953 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Birch, L. C.—Experimental background to the study of the distribution and abundance of insects. III. The relation between innate capacity for increase and

survival of different species of beetles living together on the same food. [62] 7: 136–44. **Campau, E. J., G. J. Baker and F .D. Morrison.**—Rearing stable fly for laboratory tests. [76] 46: 524. **Dashman, T.**—Terminology of the pretarsus. [52] 46: 56–62, ill. **Doderlein, L.**—Bestimmungsbuch für deutsche Land- und Susswassertiere. Insekten I. Teil, Käfer, wespen, libellen, heuschrecker usw. 2d ed. enl. von Werner Jacobs. Munchen, R. Oldenbourg, 1952. 315 pp., ill. **Härdtl, H.**—Untersuchungen über die Fauna der Taraxacum-arten. [28] 3: 69–95. **Hassanein, M. H.**—Studies on the effect of pollinating insects, especially the honey-bee, on the seed yield of clover in Egypt. [139] 46: 337–44, ill. **Ibarra Grasso, A.**—Construccion de bisturies para laboratorio. [133] 15: 294–96, ill., 1952. **Jacobs, W.**—(See under Doderlein, L.) **Klock, J. W., D. Pimentel and R. L. Stenburg.**—A mechanical fly-tagging device. [Science] 118, no. 3054: 48–9, ill. **Rautenberg, L. E.**—Berichtigung zur Abhandlung von Kraatz über Jacob Sturm's "Insecten Cabinet." [28] 3: 105–11, ill. **Rings, R. W. and G. W. Layne, Jr.**—Radioisotopes as tracers in plum curculio behavior studies. [76] 46: 473–77. **Ross, H. H.**—On the origin and composition of the nearctic insect fauna. [62] 7: 145–58, ill. **Stroud, C. P.**—An application of factor analysis to the systematics of Kalotermes. [146] 2: 76–92, ill. **Tibbetts, T.**—Ectoparasites from mammals at Camp Lejeune, North Carolina. [76] 46: 530. **Wille, J. E.**—Entomologia agricola del Peru. 2d ed. Junta de Sanidad Vegetal, Dir. gen. de agr., Ministerio de agricultura, Lima. viii + 544 pp., ill., 1952. (Reviewed in [28] 3: 208–09.) **Woolley, T. A.**—Some acarological techniques. [76] 46: 366.

BIOGRAPHIES, OBITUARIES—Banks, Nathan, 1868–1953.—Obitutary notice by P. J. Darlington, Jr. [52] 46: 173. **Blair, Kenneth Gloyne, 1882–1952.**—Obituary and short biography, by H. Sachtleben. [28] 3: 222. **Boldt, Rudolf, 1874–1952.**—In memoriam, by B. J. Lempke. [57] 14, no. 337, 301–02. **Cook, Melville Thurston,** 1859–1952. Obituary by E. L. LeClerg. [52] 46: 172. **Esselbaugh, Charles Orris,** 1898–1952.—Obituary signed M.T.J. [52] 46: 172–73. **Mutchler, Andrew J.,** 1869–1952. An appreciation. (Biography, with portrait and bibliography.) By various authors. [101] 61: 37–44. **Van Dyke, Edwin Cooper,** 1869–1952.—Biography, with portrait and bibliography of entomological writings, by E. O. Essig. [111] 29: 73–97. **Walton, William Randolph,** 1873–1952.—Obitu-

ary, with portrait, by W. A. Baker and J. S. Wade. [76] 46: 532–33.

ANATOMY, PHYSIOLOGY, MEDICAL—Aboul-Nasr, A.—On the effect of carbon tetrachloride upon etherized Drosophila virilis. [139] 46: 121–26. **Arvy, L. and M. Gabe.**—Données histophysiologiques sur les formations endocrines rétrocérébrales de quelques odonates. [18] 14: 345–74, ill., 1952. **Autrum, H.**—Neue Untersuchungen ueber das Sehen der Insekten Insbesondere der Bienen. [18] 14: 439–47, ill., 1952. **Azab, A. K.**—The effect of various types of food upon the rate of development of the larvae of Stegobium paniceum L. (Anobiidae). [139] 46: 127–47. The influence of yeast upon the rate of development of the larvae of Stegobium paniceum L. (Anobiidae). [139] 46: 149–65. **Bartlett, B. R.**—A tactile ovipositional stimulus to culture Macrocentrus ancylivorus on an unnatural host (Braconidae). [76] 46: 525. **Biliotti, E.**—Importance et signification des arrêts de développement au stade nymphal chez Thaumetopoea processionea L. [2] 256: 1703–05. **Brauns, A.**—Die Typen der Stigmenverteilung bei Terricolen Dipterenlarven. [159] 150: 171–78, ill. **Bückmann, D.**—Ueber den Verlauf und die Auslösung von Verhaltensänderungen und Umfärbungen erwachsener Schmetterlingsraupen. [Biol. Zentralbl.] 72: 260–70. **Chadwick, L. E., J. B. Lovell and V. E. Egner.**—The effect of various suspension media on the activity of cholinesterase from flies. [30] 104: 323–33. **Day, M. F. and H. Irzykiewicz.**—Feeding behaviour of the aphids Myzus persicae and Brevicoryne brassicae, studied with radiophosphorus. [Aust. Jour. Biol. Sci.] 6: 98–108. **Eisa, E. A. and A. A. Soliman.**—The chemoattraction of food constituents to insects. I. Chemoattraction of foods to cockroaches. [139] 46: 167–72, ill. **Ellis, P. E.**—Social aggregation and gregarious behaviour in hoppers of Locusta migratoria migratorioides (R. & F.). [Behaviour, Leiden] 5: 225–60, ill. **Grégoire, C.**—Blood coagulation in arthropods. III. Reactions of insect hemolymph to coagulation inhibitors of vertebrate blood. [30] 104: 372–93, ill. **Grison, P. and C. Biliotti.**—Quelques aspects de la biocénose des chenilles processionnaires. [18] 14: 423–32, 1952. **Hackman, R. H.**—Chemistry of insect cuticle. 1. The water-soluble proteins. [Biochem. Jour.] 54: 362–67. 2. The water-insoluble proteins of the cuticle of Aphodius howitti Hope (Col.). *Ibid.* 367–70. 3. The hardening and darkening of the insect cuticle. *Ibid.* 370–77. **Hafez, M.**—Studies on Tachina lar-

varum L. (Tachinidae). II. Morphology of the adult and of its early stages. [139] 46: 267–363, ill. III. Biology and life-history. *Ibid.* 305–35, ill. **Hassanein, M. H.**—Studies on the normal and pathological histology of the alimentary canal of the honey-bee. [139] 46: 345–57, ill. **House, V. L.**—The interaction of mutants affecting venation in Drosophila melanogaster. I. Interaction of hairless, engrailed and cubitus interruptus. [Genetics] 38: 199–215. **Jovancic, L.**—Genèse des pigments tégumentaires de la mante religieuse et d'autres animaux leur role biologique et physiologique. [39] 87: 92–104. **Judd, W. W.**—A caterpillar (Phalaenidae) from the digestive tract of a human. [80] 39: 250–51, ill. **Kato, M.**—The ecological investigation concerning the relation between the climatic conditions and the population density of the rice leaf-miner. [150] 18: 324–30, 1950. **Khalifa, A.**—Biological observations on Polistes gallicus L. and Polistes foederata Koch, with special reference to stylopization (Vespidae). [139] 46: 371–403, ill. **Krause, J. B. and M. T. Ryan.**—The stages of development in the embryology of the horned Passalus beetle, Popilius disjunctus Illiger. [52] 47: 1–20, ill. **Li, C. S.**—External morphology and internal anatomy of the blister beetle, Mylabris phalerata Pall. [Essays and papers in memory of Fu Ssu-Nien, Nat. Taiwan Univ.] 1952: 505–54, ill. **Mahmoud, M. I. Zeid, P. A. Dahm, R. E. Hein and R. H. McFarland.**—Tissue distribution, excretion of $C^{14}O_2$ and degradation of radioactive pyrethrins administered to the American cockroach. [76] 46: 324–36. **Marchand, H.**—Die Bedeutung der Heuschrecken und Schnabelkerfe als Indikatoren verschiedener Graslandtypen. [28] 3: 116–62. **Mathis, M.**—Mise en évidence dans une colonie d'abeilles d'un centre thermique autorégulateur résistance de ce centre aux chocs thermiques. [18] 14: 433–37, ill., 1952. **Mer, G. G. and W. Furmaska.**—The effect of the fat content in the fly food on the resistance to D.D.T. [123] 14: 49–54. **Metcalf, R. L. and R. B. March.**—Further studies on the mode of action of organic thionophosphate insecticides. [52] 46: 63–74. **Mukerji, D. and R. N. Sinha.**—Effect of food on the life history of the flour beetle, Tribolium castaneum Herbst. [82] 26: 118–24. **Noirot, C.**—Les soins et l'alimentation des jeunes chez les termites. [18] 14: 405–14, 1952. **Nuorteva, P.**—Die Nahrungspflanzenwahl der Insekten im Lichte von Untersuchungen an Zikaden. (Eng. summary: Host plant selection in insects in the light of investigations made on leafhoppers.) [Ann. Acad. Scient.

Fennicae, Ser. A, IV] no. 19, 90 pp. **Perry, A. S., A. M. Mattson and A. J. Buckner.**—The mechanism of synergistic action of DMC with DDT against resistant house flies. [30] 104: 426–38. **Popham, E. J.**—The arrangement of the ommatidia in the eyes of Corixa distincta (Fieb.) and its relation to the posture positions of this insect.. [60] 89: 100–02. Observations on the migration of corixids (Hem.) into a new aquatic habitat. [60] 89: 124–25. **Powning, R. F.**—Studies on the digestion of wool by insects. VIII. The significance of certain excretory products of the clothes moth, Tineola bisselliella, and the carpet beetle, Attagenus piceus. [Aust. Jour. Biol. Sci.] 6: 109–17. **Reiser, R., D. S. Chadbourne, K. A. Kuiken, C. F. Rainwater and E. E. Ivy.**—Variations in lipid content of the boll weevil and seasonal variation in its resistance to insecticides. [76] 46: 337–40. **Richard, G.**—Le role des organes sensoriels dans certaines phases du comportement des termites. [18] 14: 415–21, 1952. **Riggall, E. C.**—Mass movements of Coleoptera on the Lincolnshire Coast. [60] 89: 130–31. **Roeder, K. D.**—Insect physiology, John Wiley & Sons, N. Y. $15.00, xiv, 1100 pp., ill., 1953. (Review by G. S. Tullock [36] 48: 69.) **Rothfels, K. H. and R. W. Dunbar.**—The salivary gland chromosomes of the black fly, Simulium vittatum Zett. [44] 31: 226–41, ill. **Sahrhage, D.**—Oekologische Untersuchungen an Thermobia domestica (Packard) und Lepisma saccharina L. [Zeitschr. wiss. Zool., Abt. A] 157: 77–168. **Sato, S.**—Compound eyes of Culex pipiens var. pallens Coquillett. (Morphological studies on the compound eye in the mosquito, No. 1.) [150] 18: 331–41, ill., 1950. Larval eyes of Culex pipiens var. pallens Coquillett. (Morphological studies on the larval eye in the mosquito, No. 1.) [150] 19: 29–32, ill., 1951. **Seidenstuecker, G.**—Die plastische Modifikation des Flügels von Pyrrhocoris apterus Linné (Pyrrhocoridae). [28] 3: 29–55, ill. **Sieburth, J. F. and B. A. McLaren.**—Growth studies with the cockroach, Periplaneta americana (Linn.), fed vitamin-deficient diets, substituted with corresponding anti-vitamins. [52] 46: 43–48. **Smith, K. M. and N. Xeros.**—Studies on the cross-transmission of polyhedral viruses: Experiments with a new virus from Pyraemeis carui, the painted lady butterfly. [112] 43: 178–84, ill. **Smith, S. G. and D. E. Maxwell.**—Postreduction of the X-chromosome and complete chiasma interference in the Lampyridae. [44] 31: 179–92, ill. **Snodgrass, R. E.**—The metamorphosis of a fly's head. [131] 122, no. 3, 25 pp., ill. **Sotavalta, O.**—The

essential factor regulating the wing-stroke frequency of insects in wing mutilation and loading experiments and in experiments at subatmospheric pressure. [Ann. Zool., Soc. Zool. Bot. Fennicae Vanamo] 15, no. 2, 67 pp., ill., 1952. Recordings of high wing-stroke and thoracic vibration frequency in some midges. [30] 104: 439–44, ill. **Stephens, G. C., M. Fingerman and F. A. Brown, Jr.**—The orientation of Drosophila to plane polarized light. [52] 46: 75–83. **Strickland, E. H.**—The ptilinal armature of flies (Schizophora). [44] 31: 263–99, ill. **Stride, G. O.**—The respiratory bubble of the aquatic beetle, Potamodytes tuberosus Hinton (Elmidae). [98] 171: 885–86, ill. **Suomalainen, H. O. T.**—Localization of chiasmata in the light of observations on the spermatogenesis of certain Neuroptera. [Ann. Zool., Soc. Zool. Bot. Fennicae Vanamo] 15, no. 3, 104 pp., ill., 1952. Occurrence and phylogenetic significance of a true sex chromosome bivalent in a lacewing, Boriomyia nervosa F. (Neuroptera, Hemerobiidae). [Archivum Soc. Zool. Bot. Fenn. Vanamo] 7: 45–9, ill. **Tahori, A. S. and W. M. Hoskins.**—The absorption, distribution and metabolism of DDT in DDT-resistant houseflies. [76] 46: 302–06. **Takaoka, M.**—Studies of the metamorphosis in insects. I. Partial puparium formation in Drosophila melanogaster. [150] 19: 88–90, ill., 1951. **Théodoridès, J.**—Enigmatical corpuscles in the body cavity of a scarabaeid beetle. [60] 89: 167–68. **Thompson, G. B.**—Contributions toward a study of the ectoparasites (Insects) of British birds and mammals. [19] ser. 12, v. 6: 401–25, ill. **Tulloch, G. S. and J. E. Shapiro.**—Brochosomes. [36] 48: 57–63, ill. **Van der Kloot, W. G. and C. M. Williams.**—Cocoon construction by the Cecropia silkworm. II. The role of the internal environment. [Behaviour, Leiden] 5: 157–74. **Verrier, M.-L.**—Le rhéotropisme et les larves d'éphémères. [39] 87: 1–33, ill. **Wilson, E. O.**—On Flanders' hypothesis of caste determination in ants. [115] 60: 15–20. **Zaazou, H. T.**—The effect of previous infestation on host selection (Bruchidae). [139] 46: 479–85. **Zebe, E.**—Ueber den respiratorischen Quotienten der Lepidopteren. [100] 40: 298.

ARACHNIDA AND MYRIOPODA—Archer, A. F.—Studies in the orbweaving spiders (Argiopidae). [13] 1622, 27 pp., ill. (*). **Arthur, D. R.**—The immature stages of Ixodes frontalis Panzer 1795 (Acarina). [112] 43: 175–77, ill. **Bergstrom, D. W.**—Hydracarina from the Rocky Mountain region. [11] 72: 157–62. **Brennan, J. A.**—A note on the chiggers of Jamaica (Acarina, Trombiculidae). [80]

39: 292–95, ill. **Chamberlin, R. V.**—Two new chilopods of the order Geophilida. [115] 60: 37–39, ill. **Finney, G. L.**—A technique for mass-culture of the six-spotted mite. [76] 46: 381–82. **Hedeen, R. A.**—A new species of Sarcoptes (Acarina, Sarcoptidae) from the cave bat. [80] 39: 334–35. **Heisch, R. B.**—On a spirochaete isolated from Ornithodoros graingeri (Acarina). [112] 43: 133–35. **and A. E. Harvey.**—The biology of Orinthodoros graingeri Helsch & Guggisberg, 1952 (Acarina). [112] 43: 131–32. **Hopla, C. E. and C. M. Downs.**—The isolation of Bacterium tularense from the tick, Amblyomma americanum. [82] 26: 72–73. **Knowlton, G. F.**—Spider captures honey bee. [36] 48: 70. **Kohls, G. M.**—Ixodes venezuelensis, a new species of tick from Venezuela, with notes on Ixodes minor Neumann, 1902 (Acarina, Ixodidae). [80] 39: 300–03, ill. **Lamb, K. P.**—A new species of Diptilomiopus Nalepa (Acarina, Eriophyidae) together with a key to the genus. [Trans. Roy. Soc. New Zealand] 80: 367–70, ill. **Láska, F.**—Ekologické a systematické Poznatky o vodulich (Hydrachelliae, Acari) Moravskoslezskych a Vsatskych Beskyd. (English summary.) [Spisy Masarykov Univ.] cislo 336: 132 pp., ill., 1952. **Mello-Laitao, C. de.**—Aranas de Maullin, colectadas por el ingeniero Rafael Barros V. [Rev. Chilena Hist. Nat.] 51/53: 327–38, ill., 1951 (*). **Muma, M. H.**—A study of the spider family Selenopidae in North America, Central America, and the West Indies. [13] 1619, 55 pp., ill. **Santa Maria, H. C. and H. C. Brugnoni.**—Un eriofido parasito de los citricos neuvo para la fauna Argentina, Aceria sheldoni (Ewing) (Acarina, Eriophyidae). [Revista, Fac. de Agron. Buenos Aires] 28: 257–63, ill., 1952. **Viets, K.**—Die aus Afrika bekannten wassermilben (Hydrachnellae, Acari). [Hydrobiologia, The Hague] 5: 1–178. **Woolley, T. A.**—Acarina. (See General.)

SMALLER ORDERS—Arvy, L. and M. Gabe.—Odonata. (See Anatomy.) **Bacigalupo, J.**—Las pulgas de ratas de Rosario como huespedes intermediarios de cestodes (Siphonaptera). [133] 15: 263–65, 1952. **Badcock, R. M.**—Observation of oviposition under water of the aerial insect Hydropsyche angustipennis (Curtis) (Trichoptera). [Hydrobiologia, The Hague] 5: 222–25. **Burroughs, A. L. and M. B. Britschgi.**—Sylvatic plague studies. X. Survival of rodent fleas in the laboratory (Siphonaptera, Pulicidae). [112] 43: 35–48. **Carpenter, F. M.**—The biology of Brachypanorpa (Mecoptera). [115] 60: 28–36, ill. **Cross, E. A. and G. F. Knowlton.**—Fleas on flying squirrel and barn

swallow. [36] 48: 73. **Desneux, J.**—Notes sur la phylogénie des nidifications des Apicotermes. [18] 14: 393–96, 1952. **Edmunds, G. F.**—The type species of some genera of Ephemeroptera. [36] 48: 71–2. **Gardner, A. E.**—Further notes on exophytic oviposition in Odonata. [60] 89: 98–9. **Giles, E. T.**—The biology of Anisolabis littorea (White) (Dermaptera, Labiduridae). [Trans. Roy. Soc. N. Z.] 80: 383–98, ill. **Gray, H. E.**—Strepsiptera and leafhoppers. [36] 48: 74–5. **Hanson, J. F.**—Studies on the Plecoptera of North America: VI. Further notes on Isonenoides. [36] 48: 76–81, ill. **Jordan, C. R.**—A strepsipteran parasite of the three-cornered alfalfa hopper (Membracidae). [76] 46: 505. **Lane, J. E.**—A note on the discovery of a rare bat flea in Ohio (Ischnopsyllidae). [106] 53: 178. **Longfield, C.**—Oviposition in dragonflies (Odonata). [60] 89: 97. **Maillet, P. and N. Carasso.**—Reconstruction du fourreau larvaire chez un trichoptère Leptoceridae Triaenodes conspersa Ramb. [18] 14: 473–90, ill., 1952. **Mills, H. B. and W. R. Richards.**—Collembola from Arctic and boreal Canada. [82] 26: 53–59, ill. (*). **Muesebeck, C. F. W.**—Scientific names of the body and head lice (Anoplura, Pediculidae). [76] 46: 524. **Noirot, C.**—Isoptera. (See Anatomy.) **Richard, G.**—Isoptera. (See Anatomy.) **Sahrhage, D.**—Thysanura. (See Anatomy.) **Silvestri, F.**—Los insectos Japygidae hasta ahora conocidos de Chile. [Rev. Chilena Hist. Nat.] 51/53: 67–82, ill., 1951. **Stroud, C. P.**—Isoptera. (See General.) **Suomalainen, H. O. T.**—Neuroptera. (See Anatomy.) **Verrier, M.-L.**—Ephemeridae. (See Anatomy.) **Weesner, F. M.**—The biology of Tenuirostritermes tenuirostris (Desneux) with emphasis on caste development. [Publ. Zool., Univ. Calif.] 57: 251–302, ill. **Wray, D. L.**—Change of specific name of Isotoma (Collembola). [36] 48: 66. New Collembola from Puerto Rico. [Jour. Agr. Univ. Puerto Rico] 37: 140–50, ill. New North Carolina Collembola. [36] 48: 82–3.

ORTHOPTERA—Albrecht, F. O.—The breeding of the red locust in captivity. [40] 44: 1–4. **Eisa and Soliman.**—(See Anatomy.) **Ellis, P. E.**—(See Anatomy.) **Jovancic, L.**—(See Anatomy.) **Mahmoud and others.**—(See Anatomy.) **Marchand, H.**—(See Anatomy.) **Nutting, W. L.**—Observations on the reproduction of the giant cockroach, Blaberus craniifera Burm. [115] 60: 6–16, ill. **Sieburth and McLaren.**—(See Anatomy.) **Strohecker, H. F.**—The Gryllacrididae and Gryllidae of the Bahama Islands, British West Indies. [13] 1618, 11 pp., ill. (* k). **Uchida, T. and**

S. Ehara.—Effects of a dipterous parasite upon the grasshopper, Oxya yezoensis Shiraki. [Jour. Fac. Sci., Hokkaido Univ., Ser. 6] 11: 169–74, ill.

HEMIPTERA—Barber, H. G. and R. I. Sailer.—A revision of the turtle bugs of North America (Pentatomidae). [152] 43: 150–62, ill. (* k). **Beamer, R. H.**—A new species of Plesiommata from Mexico (Cicadellidae). [82] 26: 65, ill. **Brooks, G. T.**—A new subgenus and species of Enithares (Notonectidae). [82] 26: 74–75, ill. (S). **Cook, P. P., Jr.**—The membracid genus Multareis, and a new genus Multareoides. [82] 26: 78–94, ill. (k). **Costa Lima, A. da and D. Mendes.**—Sobre uma coleção de Apiomeros do Museu Argentino de ciencias naturales "Bernardino Rivadavia" (Reduviidae). [133] 15: 207–10, ill., 1952. **Day and Irzykiewicz.**—(See Anatomy.) **Drake, C. J.**—An undescribed saldid from the Gulf States (Saldidae). [36] 48: 64–6, ill. **Essig, E. O.**—Some new and noteworthy Aphidae from western and southern South America. [Proc. Calif. Acad. Sci.] 28: 59–164, ill. **Fennah, R. G.**—Revisionary notes on neotropical monecphorine Cercopoidea. [19] ser. 12, v. 6: 337–60, ill. **Fonseca, J. C. da.**—Contribuição para o estudo do Coccus hesperidum L. [37] 22: 5–53, ill. **Gray, H. E.**—(See Smaller Orders.) **Hungersford, H. B.**—Concerning Mesovelia douglasensis Hungerford. [82] 26: 76–77. **Hussey, R. F.**—Two new species of Sinea (Reduviidae). [82] 26: 61–64, ill. **Jordan, C. R.**—(See Smaller Orders.) **Kiritschenko, A. N.**—Die Wanzen des europäischen Teiles der UdSSR. Bestimmungstabelle und Bibl. Bestimmungstabellen zur Fauna der UdSSR, 42. Akad. Wissen., Moskau & Leningrad. 30 R. 50 K., 1951. (In Russian.) (Reviewed in [28] 3: 212–13.) **Kormilev, N. A. and A. A. Pirán.**—Una especie nueva del genero Glyphepomis Berg (1891) de la Argentina (Pentatomidae). [133] 15: 302–06, ill., 1952. **La Rivers, I.**—New gelastocorid and naucorid records and miscellaneous notes, with a description of the new species, Ambrysus amargosus (Naucoridae). [153] 11: 83–96, ill. **Larsen, E. L.**—Pehr Kalm's description of the periodical Cicada, Magicicada septendecim L. (Transl. from the Swedish, publ. in 1756.) [106] 53: 138–42. **McKenzie, H. L.**—A new scale insect from the Ryukyu Islands related to red scale. Scale studies, Part XI. [Bull. California, Dept. Agr.] 42: 35–41. **Marchand, H.**—(See Anatomy.) **Merrill, G. B.**—A revision of the scale-insects of Florida. [Bulletin, State Plant Bd. Florida] no. 1, 143 pp., ill. **Metcalf, Z. P.**—Sexual di-

morphism with a new species of Philya Walker (Membracidae). [101] 61: 45–51, ill. **Miller, N. C. E.**—Notes on the biology of the Reduviidae of Southern Rhodesia. [Trans. Zool. Soc. London] *27*: 541–654, col. illus. **Morcos, G.**—The biology of some Hemiptera-Homoptera (Auchenorhyncha). [139] 46: 405–39, ill. **Nuorteva, P.**—(See Anatomy.) **Popham, E. J.**—(See Anatomy.) **Priesner, H. and A. Alfieri.**—A review of the Hemiptera Heteroptera known to us from Egypt. [139] 46: 1–119. **Richter, L.**—El apendice pronotal en los membracidos. [Lozania, Acta zool. Colomb.] no. 7, 4 pp. **Ruppel, F. F. and D. M. DeLong.**—Three new species of typhlocybine leafhoppers from Mexico (Cicadellidae). [106] 53: 181–82, ill. **Sailer, R. I.**—A note on the bionomics of the green stink bug (Pentatomidae). [82] 26: 70–71. **Seidenstuecker, G.**—(See Anatomy.) **Smith, R. C. and R. S. Taylor.**—The biology and control of the hackberry psyllids in Kansas. [82] 26: 103–15, ill. **Young, D. A., Jr.**—Empoascan leafhoppers of the solana group with descriptions of two new species (Cicadellidae). [Jour. Agr. Univ. Puerto Rico] 37: 151–60, ill.

LEPIDOPTERA — Biliotti, E. — (See Anatomy.) **Brower, A. E.**—Three new species of microlepidoptera (Olethreutidae, Glyphipterygidae and Yponomeutidae). [52] 46: 95–8, ill. **Brown, F. M.**—The subspecies of Oeneis alberta (Satyridae). [13] 1626, 21 pp., ill. Taxonomic notes on Oeneis uhleri Reakirt (Satyridae). [13] 1625, 26 pp., ill. **Bückmann, D.**—(See Anatomy.) **Callan, E. McC.**—Observations on the species of Pachyzancla Meyrick (Pyraustidae) in Trinidad. [60] 89: 160–61. **Fender, K. M.**—Two new races of Euphydryas anicia Doubleday & Hewitson (Nymphalidae). [153] 11: 115–19. **Gibbs, A. J.**—Gurleya sp. (Microsporidia) found in the gut tissue of Trachea secalis (Noctuidae). [112] 43: 143–47, ill. **Grison and Biliotti.**—(See Anatomy.) **Haaf, E.**—Ueber die Genitalmorphologie der Zygaenen. [Veröffent. Zool. Staatssam. München] 2: 125–60, ill., 1952. **Judd, W. W.**—(See Anatomy.) **Muller, J.**—The geometric larva of Lytrosis unitaria. [36] 48: 68–9. **Orfila, R. N.**—Un genero y especie nuevos de Arctiidae Argentina. [133] 15: 297–301, ill., 1952. **Pastrana, J. A.**—Una especie de Midila no reconocida anteriormente en las colecciones (Schoenobidae). [133] 15: 307–13, ill., 1952. **Powning, R. F.**—(See Anatomy.) **Robinson, D.**—Garden bagworm, Apterona crenulella (—Helix) in Nevada and Placer Counties, California. [Bull. Cal. Dept.

Agr.] 42: 25–33. **Singh, B.**—Immature stages of Indian Lepidoptera. No. 8—Geometridae. [Indian Forest Records, n.s. Ent.] 8: 67–158, ill. **Smith and Xeros.**—(See Anatomy.) **Van der Kloot and Williams.**—(See Anatomy.) **Vasquez, G. L.**—Observaciones sobre pieridos mexicanos con descripciones de algunas formas nuevas. IV. Zerene caesonia Stoll. [88] 23: 257–67, ill., 1952. **Wyatt, A. K.**—Schinia jaguarina—its food plant (Phalaenidae). [36] 48: 70. **Zebe, E.**—(See Anatomy.)

DIPTERA—Aboul-Nasr, A.—(See Anatomy.) **Aczél, M. L.**—Catalogo de la familia Dorilaidae (Pipunculidae) de la region neotropical. [133] 15: 237–51, 1952. **Baisas, F. E. and P. Feliciano.**—Notes on Philippine mosquitoes, XIII. Four new species of Zeugnomyia and Topomyia. [Chic. Nat. Hist. Mus., Fieldiana: Zoology] 33: 161–79, ill. **Bequaert, J. C.**—The Hippoboscidae or louseflies of mammals and birds. Part I. Structure, physiology and natural history. (Continuation.) [51] 33: 211–442. Nemestrinidae of Iowa and Missouri. [115] 60: 14. **Brauns, A.**—(See Anatomy.) **Brito da Cunha, A.**—A further analysis of the polymorphism of Drosophila polymorpha. [98] 171: 887. **Bryce, D.**—Notes on the life-history of Bibio leucopterus Mg. (Bibionidae). [60] 89: 156–57, ill. **Campau, Baker and Morrison.**—(See General.) **Camras, S.**—Notes on neotropical Zodion and Parazodion (Conopidae). [19] ser. 12, v. 6: 395–99. A review of the genus Myopa in North America (Conopidae). [153] 11: 97–114 (k). **Capelle, K. J.**—A revision of the genus Loxocera in North America with a study of geographical variation in L. cylindrica (Psilidae). [52] 46: 99–114, ill. (* k). **Dalmat, H. T.**—Simuliidae of Guatemala. Descriptions of Simulium (Dyarella) ardeni n. sp. and Simulium (Lanea) jacobsi n. sp. [52] 46: 35–42, ill. **Davies, D. M.**—Longevity of black flies in captivity. [44] 31: 304–12. **Davies, L.**—Some field observations on Simuliidae at Holandsfjord, Norway. [107] 3: 193–99. **De Buen, A. M.**—Descripcion de la pupa de Wyeomyia (Wyeomyia) abebela Dyar y Knab, 1908 (Culicidae). [88] 23: 253–55, ill., 1952. Orthopodomyia kummi Edwards, 1939, mosquito nuevo para Mexico, descripcion de la larva y de la pupa (Culicidae). [88] 23: 243–52, ill., 1952. **English, K. M. I.**—Notes on the morphology and biology of Ectenopsis vulpecula Wied. var. angusta Macq. (Tabanidae). [Proc. Linn. Soc. N. S. W.] 77: 270–74, ill., 1952. **Etcheverry, M. C.**—Syrphidae de Tarapaca. [Rev.

Chilena Hist. Nat.] 51/53: 355–58, 1951. **Fairchild, G. B. and M. Hertig.**—Notes on the Phlebotomus of Panama (Psychodidae). X. P. aragaoi, P. barrettoi and two new species. [52] 46: 21–34, ill. **Flitters, N. E. and P. S. Messenger.**—Bioclimatic studies of oriental fruit fly in Hawaii. [76] 46: 401–03. **Frohne, W. C.**—Natural history of Culiseta impatiens (Wlk.) (Culicidae) in Alaska. [11] 72: 103–18. **Frost, S. W.**—Tabanidae attracted to light. [52] 46: 124–25. **García, M.**—Las especies Argentinas del genero Philornis Mein., con descripcion de especies nuevas (Anthom.). [133] 15: 277–93, ill., 1952. **Hafez, M.**—(See Anatomy.) **Hase, A.**—Hautreaktionen nach Stichen der Gnitze Culicoides minutissimus Zett (Heleïdae). [Zeit. für Parasiten] 15: 519–37, ill. **House, V. L.**—(See Anatomy.) **Jobling, B.**—On the blood-sucking midge Culicoides vexans Stager, including the description of its eggs and the first-stage larva (Ceratopogonidae). [112] 43: 148–59, ill. **Kato, M.**—(See Anatomy.) **and M. Toriumi.**—Studies in the associative ecology of insects. I. Nocturnal succession of a mosquito association in the biting activity. II. Synecological investigation of the larval habitats of mosquitoes. [150] 18: 467–76, 1950. **LaBerge, W. E.**—A note on a phorid parasite of Pheidole dentata Mayr. [82] 26: 69. **Leví-Castillo, R.**—Nota sobre cuatro especies del género Haemagogus, Williston 1896 que son propias de la América Central (Culicidae). [Rev. Ecuatoriana Ent. y Paras.] 1, no. 2, 15–24, ill. **Macfie, J. W. S.**—Ceratopogonidae from Costa Rica. [28] 3: 95–105, ill. **Martin, C. H.**—The range of variation and a new synonym in the genus Myelaphus Bigot (Asilidae). [82] 26: 66–69, ill. **Nash, T. A. M. and W. A. Page.**—The ecology of Glossina palpalis in northern Nigeria. [126] 104: 71–169, ill. **Ponte, E. del and M. Castro.**—Las especies Argentinas de Psorophora (Culicidae). [133] 15: 211–30, ill., 1952. **Reinhard, H. J.**—New Mexican Tachinidae. [82] 26: 95–102. **Rothfels and Dunbar.**—(See Anatomy.) **Sato, S.**—(See Anatomy.) **Schoof, H. F. and G. A. Mail.**—Dispersal habits of Phormia regina in Charleston, West Virginia. [76] 46: 258–62. **Senior-White, R. A., G. Lewis and P. Lee.**—On swarming and mating in Anopheles aquasalis Curry. [40] 44: 163–73. **Snodgrass, R. E.**—(See Anatomy.) **Sotavalta, O.**—(See Anatomy.) **Stephens, Fingerman and Brown.**—(See Anatomy.) **Steyskal, G. C.**—Further notes on Diptera of tree trunks, with descriptions of two new species of Drapetis

(Empididae) and an abstract of a Finnish paper on Diptera by Tuomikoski. [Papers Mich. Acad. Sci., Arts and Letters] 38: 255–60, ill. **Strickland, E. H.**—(See Anatomy.) **Tahori and Hoskins.**—(See Anatomy.) **Takaoka, M.**—(See Anatomy.) **Uchida and Ehara.**—(See Orthoptera.) **Vaillant, F.**—Hemerodromia Seguyi, nouvel empidide d'Algérie destructeur de simulies. [Hydrobiologia, The Hague] 5: 180–88, ill. **Willett, K. C.**—The laboratory maintenance of Glossina. I. [112] 43: 110–30. **Wirth, W. W.**—American biting midges of the heleid genus Monohelea. [151] 103: 135–52, ill. (* k). Biting midges of the heleid genus Stilobezzia in North America. [151] 103: 57–85, ill. (k). **and F. S. Blanton.**—Studies in Panama Culicoides (Heleidae). II. Descriptions of six additional new species. [80] 39: 229–36, ill.

COLEOPTERA—Arnett, R. H., Jr.—A review of the beetle family Cephaloidae. [151] 103: 155–61, ill. (k). **Azab, A. K.**—(See Anatomy.) **Bechyné, J.**—Les chrysomélides vrais capturés par le Rév. Père Rio Buck à Rio Grande do Sul (Brésil méridional) (Phytophaga). [48] 4: 1–18, ill. (* k). **Birch, L. C.**—(See General.) **Blake, D. H.**—The chrysomelid beetles of the genus Strabala Chevrolat. [151] 103: 121–34, ill. **Cartwright, O. L.**—Scarabaeid beetles of the genus Bradycinetulus and closely related genera in the United States. [151] 103: 95–120, ill. **Cazier, M. A.**—A review of the scarab genus Acoma (Scarabaeidae). [13] 1624, 13 pp. (* k). **Clark, L. R.**—The ecology of Chrysomela gemellata Rossi and C. hyperici Forst., and their effect on St. John's wort in the Bright District, Victoria. [Aust. Jour. Zool.] 1: 1–62, ill. **Edwards, J. G.**—The peculiar clasping mechanisms of the phallus of males of Priacma (Cupesidae). [47] 7: 17–20, ill. Species of the genus Syneta of the world (Chrysomelidae). [153] 11: 23–82, ill. (k). **El-Kifl, A. H.**—Morphology of the adult Tribolium confusum Duv. and its differentiation from Tribolium (Stene) castaneum Herbst (Tenebrionidae). [139] 46: 173–249, ill. **Fisher, W. S.**—New species of Buprestis from Cuba. [Memorias Soc. Cubana Hist. Nat.] 21: 329–30, ill. **Gay, F. J.**—Observations on the biology of Lyctus brunneus (Steph.). [Aust. Jour. Zool.] 1: 102–10. **Hall, D. W. and R. W. Howe.**—A revised key to the larvae of the Ptinidae associated with stored products. [40] 44: 85–96, ill. **Krause and Ryan.**—(See Anatomy.) **Li, C. S.**—(See Anatomy.) **Luginbill, P., Sr. and H. R. Painter.**—

May beetles of the United States and Canada. [Tech. Bull. U. S. Dept. Agr.] no. 1060, 102 pp., 78 pls. (*). **Martínez, A.**—Insectos nuevos o poco conocidos—IX. Algunas notas sobre Bolbocerini Argentinos y Chilenos con descripcion de una especie nueva (Scarab. Geotrupinae). [133] 15: 314–27, ill., 1952 (k). **Pallister, J. C.**—The leaf beetles of north central Mexico collected on the David Rockefeller Mexican Expedition (Chrysomelidae). [13] 1623, 95 pp. (* k). **Papp, C. S. and G. A. Varga.**—Über die cryptorhynchinen-gattung Conotrachelus (Curculionidae). 2. Beitrag zur förderung der wissenschaftlichen zusammenarbeit mit dem neugegründeten "International Hylean Amazone Institute" in Manaos, Brasilien. [Portugaliae Acta Biologica] 3: 205–27, 1952. **Pennak, R. W.**—The larva of Zaitzevia parvula (Horn) (Elmidae). [11] 72: 135–39, ill. **Pic, M.**—Les Eurymetopum B. de la R. Argentine (Cleridae). [133] 15: 252–62, 1952 (k). Melandryidae (Col. Hétéromères) nouveaux. [19] ser. 12, v. 6, 333–36. **Powning, R. F.**—(See Anatomy.) **Riggall, E. C.**—(See Anatomy.) **Rings and Layne.**—(See General.) **Scherf, H.**—Der Schildkäfer dreht sich um. [Kosmos] 49: 264–65, ill. **Smith and Maxwell.**—(See Anatomy.) **Stride, G. O.**—(See Anatomy.) **Théodoridès, J.**—(See Anatomy.) **Tilden, J. W.**—Biological notes on Trirhabda flavolimbata (Chrysomelidae). [47] 7: 20–23. **Van Dyke, E. C.**—The Coleoptera of the Galapagos Islands. [Occas. Papers, Calif. Acad. Sci.] 22, 181 pp., ill. (* k). New Coleoptera from western North America (Carabidae, Melasidae, Buprestidae, Curculionidae). [111] 29: 102–07. (Carabidae, Throscidae, Curculionidae). *Ibid.* 98–101. A new cossonid beetle from California, probably introduced (Curculionidae). [111] 29: 107–08. **Viana, M. J.**—Nueva subfamilia de Curculionidae, para la Argentina y Bolivia, subfamily Schöenherriellinae. [133] 15: 231–36, ill., 1952. **Wichmann, H. E.**—Der Reigenflug der Borkenkäfer. [159] 150: 105–12, ill. **Young, F. N.**—Two new species of Matus, with a key to the known species and subspecies of the genus (Dytiscidae) . [52] 46: 49–55, ill. Two new species of water beetles from Florida (Dytiscidae). [115] 60: 21–27, ill. The water beetles of the Bahama Islands, British West Indies (Dytiscidae, Gyrinidae, Hydrochidae, Hydrophilidae). [13] 1616, 20 pp. **Zaazou, H. T.**—(See Anatomy.)

HYMENOPTERA—Bartlett, B. R.—(See Anatomy.) **Brown, W. L., Jr.**—The neotropical species of the ant

genus Strumigenys Fr. Smith: group of mandibularis Fr. Smith. [101] 61: 53–9. Three new ants related to Strumigenys louisianae Roger. [115] 60: 1–5. **Callan, E. McC.**—Sawflies (Tenthredinidae and Argidae) from Trinidad, British Guiana and Venezuela. [60] 89: 126. **Flanders, S. E.**—Aphelinid biologies with implications for taxonomy. [52] 46: 84–94 (k). **Grundmann, A. W. and B. V. Peterson.**—House infesting ants in Salt Lake City, Utah (Formicidae). [82] 26: 59–60. **Hall, D. W. and I. C. Smith.**—Atypical forms of the wingless worker and the winged female in Monomorium pharaonis (L.) (Formicidae). [62] 7: 127–55, ill. **Hassanein, M. H.**—(See General.) **Khalifa, A.**—(See Anatomy.) **Knowlton, G. F.**—(See Arachnida.) **LaBerge, W. E.**—(See Diptera.) **Ledoux, A.**—Recherches préliminaires sur quelques points de la biologie d'Odontomachus assiniensis Latr. (Formicoidea). [18] 14: 231–48, ill., 1952. **Mathis, M.**—(See Anatomy.) **Moure, J. S.**—Notas sôbre Colletidae Sul-Americanos (Apoidea). [48] 4: 61–77 (*). **Nikolskaja, M. N.**—Die Chalcididen der Fauna der UdSSR. Bestimmungstabellen zur Fauna der UdSSR, 44. Akad. Wissenschaft. UdSSR, Moskau & Leningrad. 34 Rubles. 575 pp., ill., 1952. (In Russian.) (Reviewed in [28] 3: 210–12.) **Raignier, R. P. A. and J. K. A. van Boven.**—Quelques aspects nouveaux de la taxonomie et de la biologie des doryles Africains (Formicidae). [18] 14: 397–403, 1952. **Santis, L. de.**—Calcidoideos Argentinos, nuevos y conocidos. [133] 15: 266–76, ill., 1952. **Smith, O. J.**—Species, distribution, and host records of the braconid genera Microctonus and Perilitus. [106] 53: 173–78. **Stephen, W. P.**—Um nome novo para Colletes ciliatus Friese (Apoidea). [48] 4: 40. **Strandtmann, R. W.**—Notes on the nesting habits of some digger wasps (Pompilidae). [82] 26: 45–52, ill. **Stucker, G.**—Engineer of insects—the diggerwasp. [Frontiers] 17: 137–39, 152, ill. **Talbot, M.**—Ants of an old-field community on the Edwin S. George Reserve, Livingston Co., Mich. [Contributions, Lab. Vertebrate Biol., Univ. Mich.] no. 63, 13 pp. **Wheeler, G. C. and J.**—The ant larvae of the myrmicine tribes Melissotarsini, Metaponini, Myrmicariini and Cardiocondylini. [152] 43: 185–89, ill. The ant larvae of the subfamily Formicinae. [52] 46: 126–71, ill. **Wilson, E. O.**—(See Anatomy.)

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

American Sarcophagidae—wanted for identification. H. R. Dodge, P.O. Box 185, Chamblee, Georgia.

German lepidopterist wishes to correspond and receive live material (eggs and pupae) in exchange for dried imagoes. Johannes Reichel, Koenigsberg, Krs. Wetzlar 16, Germany.

For exchange—The periodic Cicada, T. septendecim. Desire Lepid., espec. Papil., Sphing. & Speyeria. Also Col., espec. Ceramb. & Lucan. John W. Morris, 2704 Genesee St., Syracuse 9, N. Y.

Cynipid and Itonidid galls—American species wanted; purchase or exchange for British species. Fresh or dried. D. Leatherdale, F.R.E.S., Old Woodstock, Oxford, England.

Wanted—Reprints or papers concerning insects taken in Alaska for inclusion in list of Alaskan insects. R. H. Washburn, Alaska Experiment Station, Palmer, Alaska.

Conopidae of the World wanted. Will pay 10¢ to $1.00 for pinned and labelled specimens. S. Camras, 4407 N. Milwaukee Ave., Chicago 30, Illinois.

Anisoptera—Nearctic sp. wanted for exchange, espec. Ophiog., Arigom., Aeschna, Neurocor., Somatoc., Cordulia, Dorocor., Leucor. R. D. Cuyler, N. C. State College, Raleigh, N. C.

Bembicini and Stizini (Hym., Sphec.) of New World wanted for revis. study. Will return upon request or at end of project. James E. Gillaspy, Dept. of Zoology, Univ. Texas, Austin 12, Texas.

Agapema galbina. Will exchange cocoons of this moth for nature books. E. Frizzell, Route 4, Box 96, San Benito, Texas.

Entomological Equipment and Literature

Tight-fitting, light weight Paulownia-wood insect boxes, cork-lined; ideal for private collections, travel or mailing boxes: 8½ x 12", $1.00 plus postage and packing; also smaller sizes.

Medium weight pinning forceps, $.80; fine, straight, 5" forceps, $.45; 10 × hand lens, $1.00; also glass-ware, vials, corks, sheet-cork, unit trays, etc. Payment in U. S. check or money-order. Write us your needs in equipment or literature.

R. Iso, 141, 1-chome, Shimouma, Setagaya-Ku, Tokyo, Japan

For Your Collecting Needs . . .

BUY THE *KNOWN* BEST!

WARD'S equipment can be relied on to be of *tested* value to you. Because WARD'S has long set the standard of entomological supply, you may depend on the quality of the aids available for *all* your needs. Send for free catalog of Entomological Supplies and Equipment to *Department E 12.*

WARD'S Natural Science Establishment, Inc.
Serving the Natural Sciences Since 1862
3000 Ridge Road East • Rochester 9, New York

The Most Absorbing Book in Print Today on—

AMERICAN SPIDERS

by WILLIS J. GERTSCH
American Museum of Natural History

45 full-color illustrations and 74 in black and white gravure, from photographs taken in the field by well-known naturalists, depict an amazing array of spiders in their natural habitats and how they live, work, and reproduce.

order from your bookstore, $7.50
or from

D. VAN NOSTRAND COMPANY, INC., 250 Fourth Avenue New York 3, N. Y.

MEMOIRS OF THE AMERICAN ENTOMOLOGICAL SOCIETY

The Society offers for sale the 14 numbers of this important and steadily growing series of longer monographic works, all numbers of which are still in stock.

1.—Cresson (Ezra T.)—The Cresson Types of Hymenoptera (141 pp., 1916) ..... $ 3.00

2. —Hebard (Morgan)—The Blattidae of North America, North of the Mexican Boundary (284 pp., 10 pls., 1917) 5.50

3.—Munz (Philip A.)—A Venational Study of the Suborder Zygoptera (Odonata), with Keys for the Identification of Genera (78 pp., 20 pls., 1919) 2.00

4.—Hebard (Morgan)—The Blattidae of Panama (148 pp., 60 pls., 1920) 3.00

5.—Cresson (Ezra T.)—The Type of Hymenoptera in the Academy of Natural Sciences of Philadelphia other than those of Ezra T. Cresson (90 pp., 1928) 2.00

6.—Rivnay (Ezekiel)—Revision of the Rhipiphoridae of North and Central America (Coleoptera) (68 pp., 4 pls., 1929) 2.00

7.—Leonard (Mortimer D.)—A Revision of the Dipterous Family Rhagionidae (Leptidae) in the United States and Canada (182 pp., 3 pls., 1930) 4.50

8.—Rehn (James A. G. and Rehn, John W. H.)—The Eumastacinae of southern Mexico and Central America (84 pp., 6 pls., 1934) .. 2.50

9.—Pate (V. S. L.)—The Generic Names of the Sphecoid Wasps and their type species (103 pp., 1937) 2.50

10.—Huckett (H. C.)—A Revision of the North American species belonging to the genus Pegomyia (131 pp., 9 pls., 1941) 3.00

11.—Townes (Henry K., Jr.)—Catalogue and reclassification of The Nearctic Ichneumonidae (925 pp., 1944) 15.00

12.—Phillips (Venia Tarris)—The Biology and Identification of Trypetid Larvae (161 pp., 16 pls., 1946) 5.00

13.—Braun (Annette F.)—Elachistidae of North America (Microlepidoptera) (110 pp., 26 pls., 1948) 4.50

14.—Rehn (John W. H.)—Classification of the Blattaria as indicated by their Wings (134 pp., 13 pls., 1951) 5.00

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA 3, PA.